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(54) Improvements in or relating to tachograph charts

(57) A tachograph chart has an area 24 to receive a record of time spent driving, resting or engaged in garage or other repair work, the area 24 being divided into two annular bands 24*a* and 24*b* respectively intended to receive a trace when the chart is used in conjunction with a tachograph in which a manual operation is necessary by the driver in order to indicate a change from one category of use to another, and to receive a trace when the chart is used in conjunction with a tachograph in which a change from one category of use to another is registered automatically, e.g. by using appropriate sensors, the position or form of the trace in each case indicating the particular category of use concerned. Symbols 28, 32 aid the interpretation of the manual and automatic tracers respectively. Consequently the same design of chart can be used for different types of tachograph, thereby reducing printing and stocking costs.

Fig.1A.

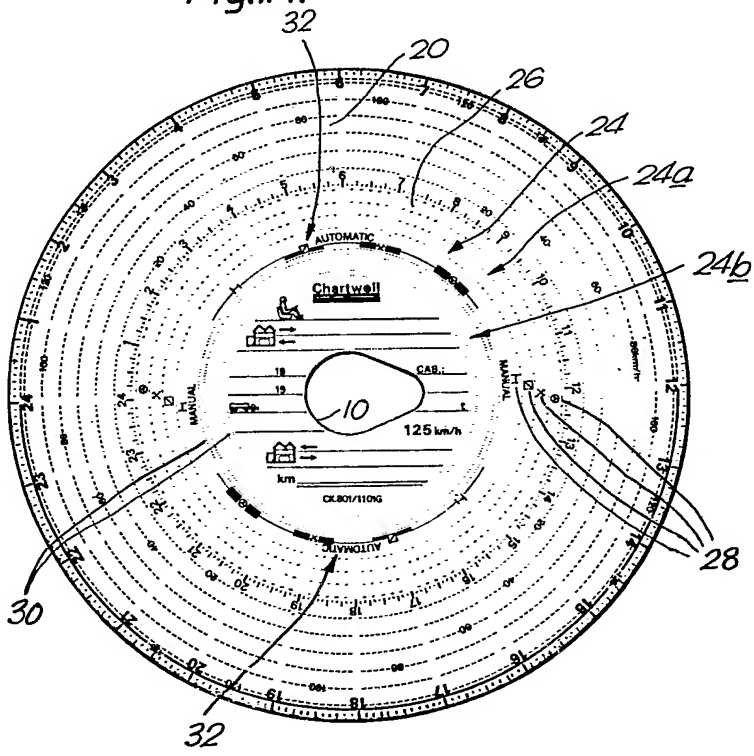

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Fig.1A.

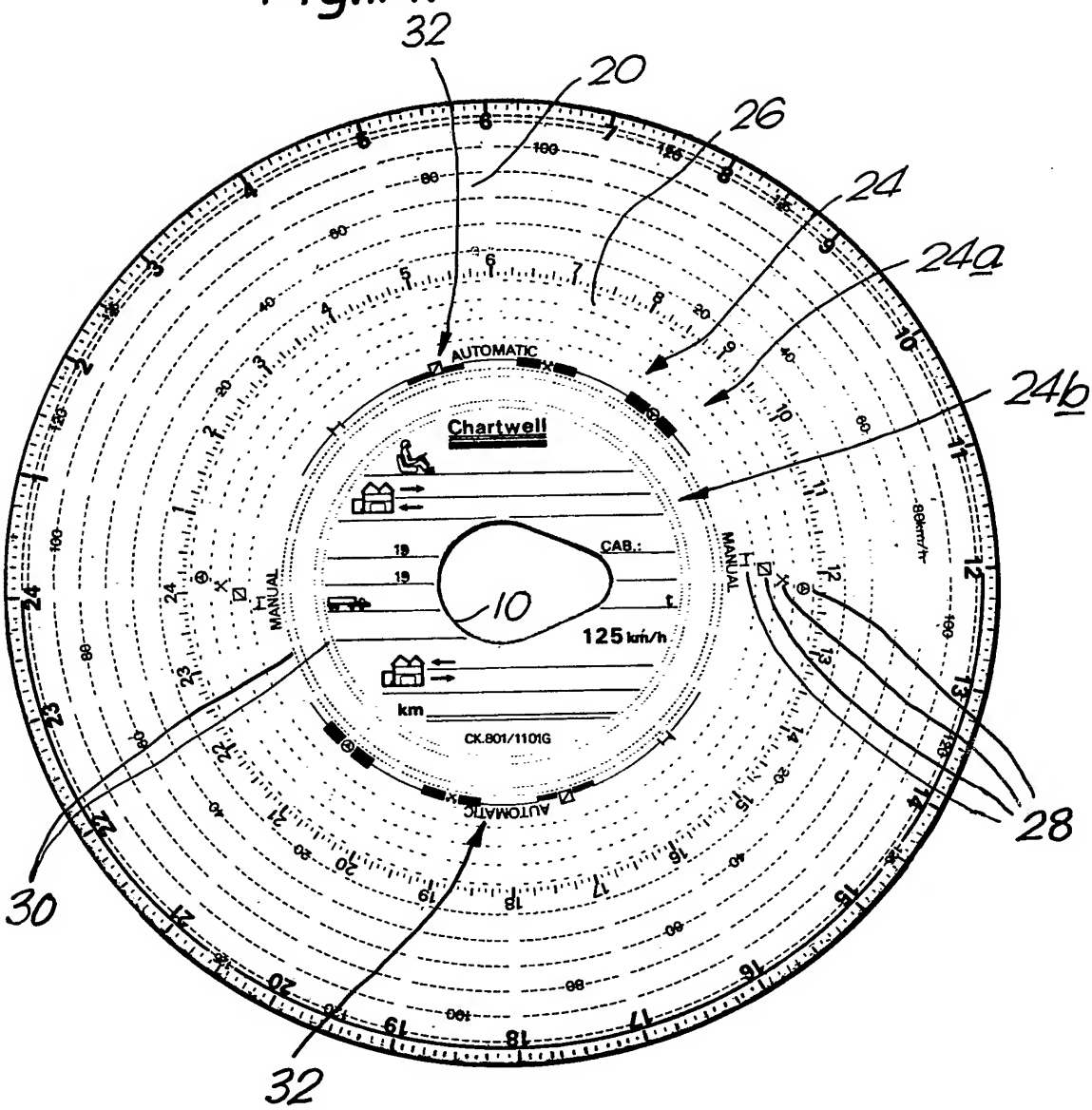
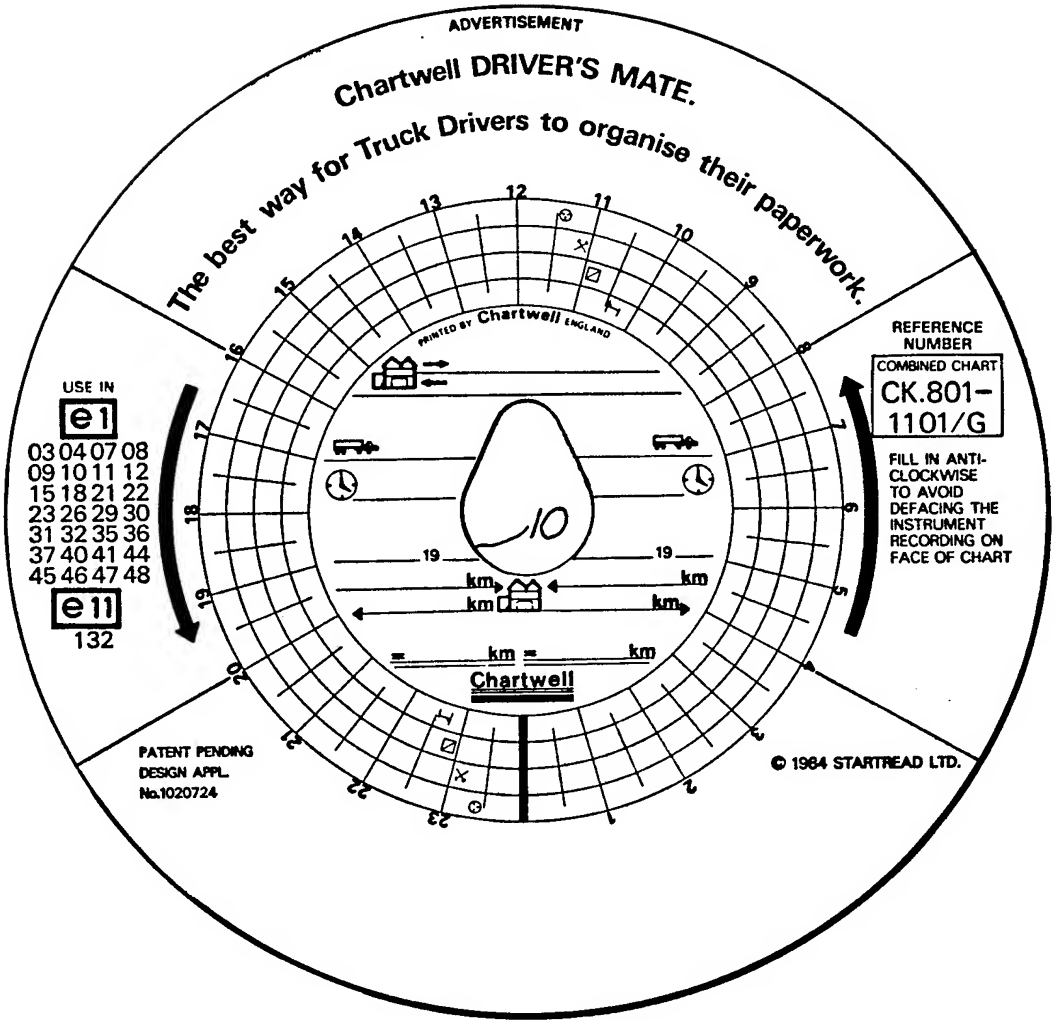

32
20
26
24
24a
24b
28
30
32
10
AUTOMATIC
MANUAL
Chartwell
CAB.:
125 km/h
km
CK.801/1101G

Fig.1B.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e1
03 04 07 08
09 10 11 12
15 18 21 22
23 26 29 30
31 32 35 36
37 40 41 44
45 46 47 48
e11
132
REFERENCE NUMBER
COMBINED CHART
CK.801-1101/G
FILL IN ANTI-CLOCKWISE TO AVOID DEFACING THE INSTRUMENT RECORDING ON FACE OF CHART
10
km
Chartwell
PATENT PENDING
DESIGN APPL.
No.1020724
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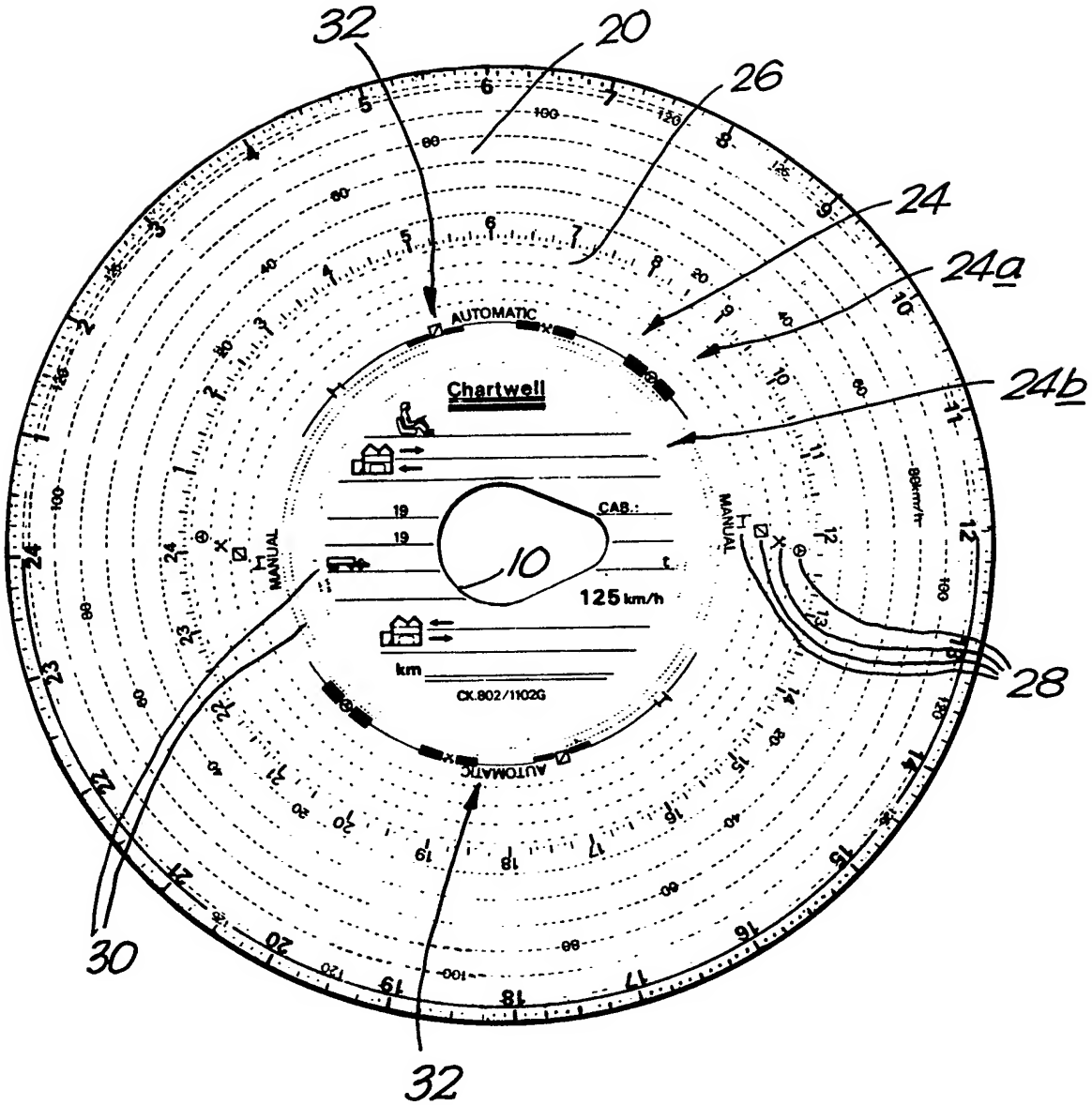
Fig.2A.


32
20
26
24
24a
24b
28
30
32
10
AUTOMATIC
Chartwell
CAB.:
125 km/h
km
CK.802/1102G
MANUAL
MANUAL
AUTOMATIC

2162040

Fig.2B.

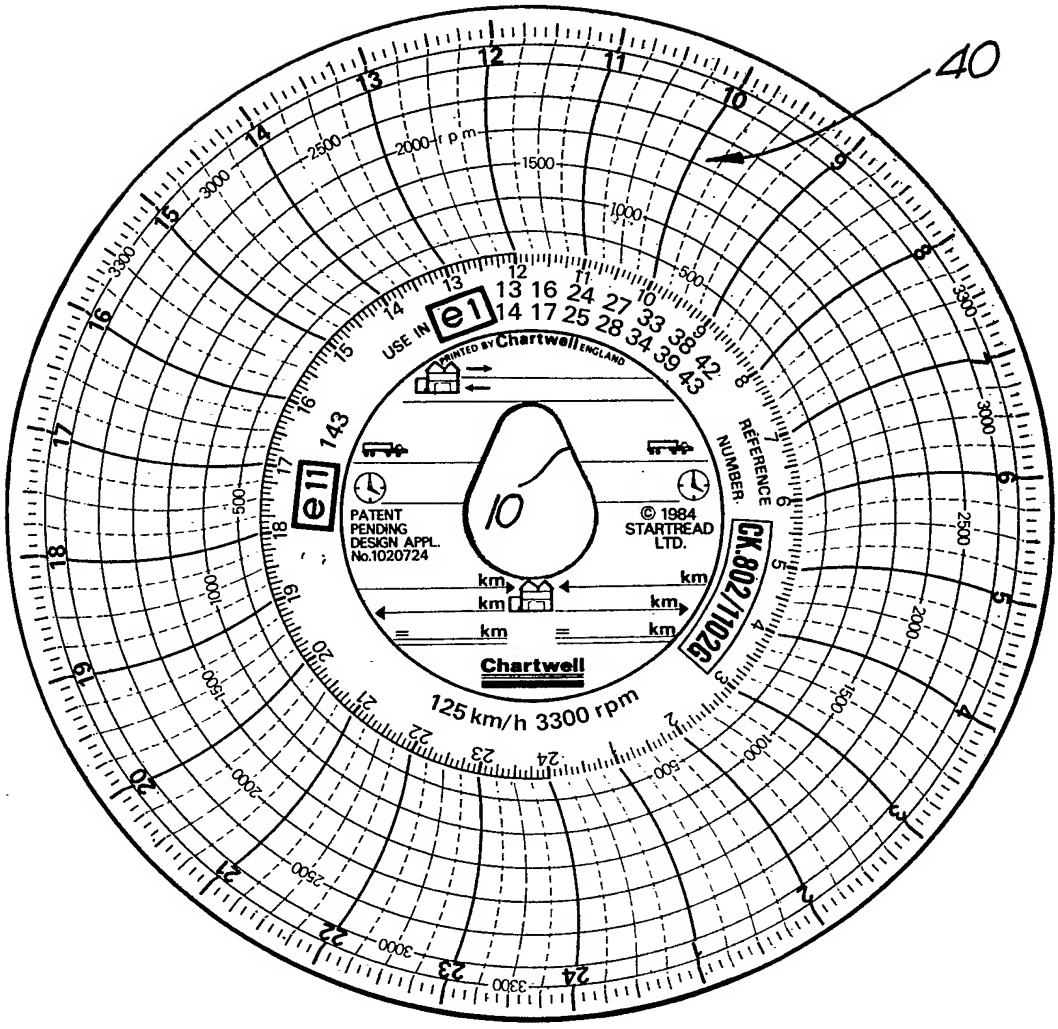
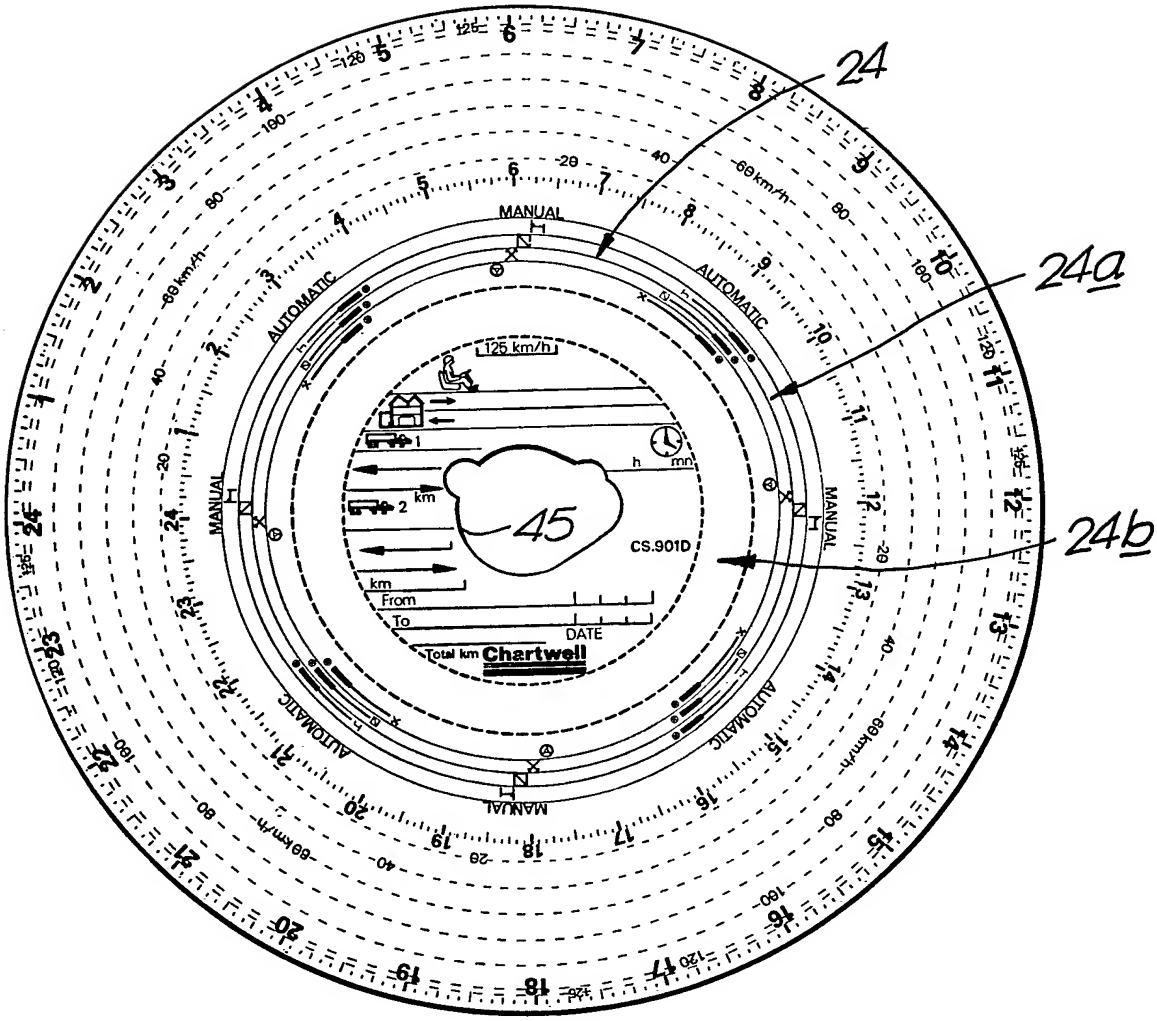
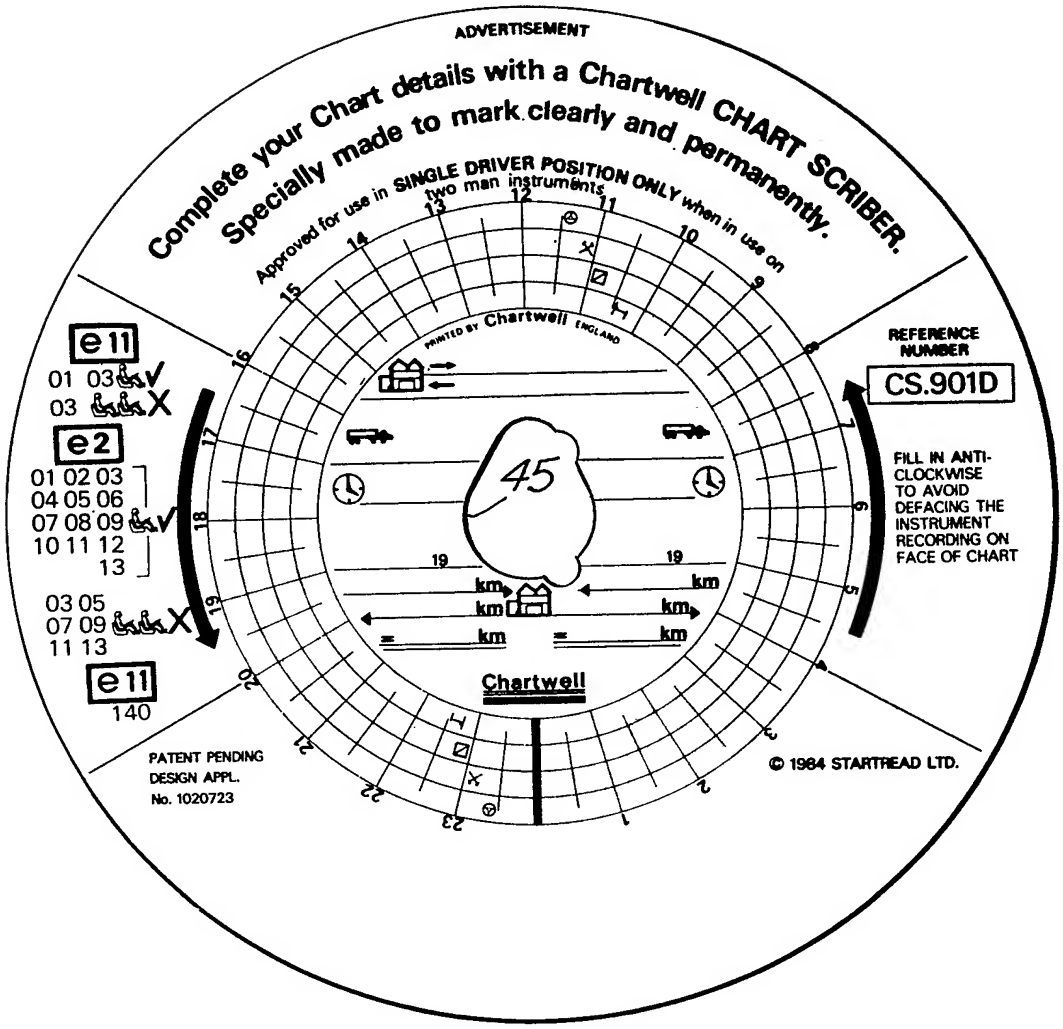


Fig.3A.


24
24a
24b
MANUAL
AUTOMATIC
125 km/h
45
CS.901D
km
From
To
DATE
Total km
Chartwell

2162340

Fig.3B.



SPECIFICATION

Improvements in or relating to tachograph charts

This invention relates to tachograph charts, i.e. to the charts which are fitted to tachographs fitted to commercial vehicles and the like and which charts bear the actual record of the hours per day spent driving, at rest, etc., by the driver of the vehicle.

A difficulty has arisen in connection with the use of tachographs in commercial vehicles and the like, namely that tachographs themselves have been subject to evolution and improvement over the years, with the result that different models of tachographs may be fitted to different vehicles. As a result, it is necessary to provide a variety of different types of tachograph chart for respective different types of tachograph, since even in cases where it is physically possible to use one type of tachograph chart in a tachograph of a type other than that for which it was designed, such use is generally contrary to the respective regulations, as not having been specifically approved, for example because of consequent difficulty in interpreting the traces produced upon the respective tachograph chart. As a result, at the present time, it is common for, for example, the operator of a fleet of commercial vehicles to find it necessary to maintain stocks of a variety of different types of tachograph chart each for a respective different model of tachograph, even though these, as will normally be the case, emanate from a single manufacturer. Even when this is done, there is the additional difficulty that where one driver changes vehicles in the course of a working day, it may be necessary for him to maintain two or more tachograph charts for that day, one for each of the vehicles concerned, with consequent inconvenience, possibility of confusion and resultant breach of the relevant regulations.

It is an object of the present invention to provide a tachograph chart by means of which the above noted disadvantages may be avoided or considerably alleviated.

According to the invention there is provided a tachograph chart having an area adapted to receive a record as to a particular characteristic or set of characteristics and which area bears markings to assist in interpretation of a record trace over said area, and wherein said chart is adapted for use on any one of at least two models of tachograph adapted to provide record traces of different types in said area, said area of said chart bearing respective markings or sets of markings to assist in interpretation of each of said different types of trace.

Embodiments of the invention are described below by way of example with reference to the accompanying drawings in which:-

Figures 1A and *1B* are respective views of opposite sides of one form of tachograph chart embodying the invention,

Figures 2A and *2B* are respective views of opposite sides of another form of tachograph chart embodying the invention and

Figures 3A and *3B* are respective views of opposite sides of a third form of tachograph chart embodying the invention.

Figure 1A shows that side of a tachograph chart upon which a recording trace is adapted to be formed mechanically by a tachograph (not shown), the respective face having a pressure-sensitive coating upon which the respective traces may be formed by the application of pressure by an appropriate stylus of the tachograph. The chart is in the form of a circular disc having a non-circular central aperture 10 to receive a driving element, of corresponding cross-section, of the tachograph. Around the periphery of the disc is provided a series of markings and numerals corresponding to the dial of a twenty-four hour clock and it will be appreciated that essentially, when fitted to a tachograph, the disc rotates throgh one revolution in the course of a period of twenty-four hours whilst appropriate stylii of the tachograph, which remain fixed in angular position about the axis of the disc, form appropriate traces on the chart. The chart comprises various annular areas, including an outer area 20 for receiving a trace indicative of the speed of the vehicle over respective periods of time and an inner area 24 intended to receiving a trace indicative of the respective period of time spent by the driver driving, resting, or engaged in garage or other repair work. For ease of description, the above-noted activities are herein referred to as categories of use. The annular area 24 is, in turn, dividied into an outer annular area 24*a* and an inner annular area 24*b*, the outer annular area 24*a* being intended to receive the respective traces when the chart is used in conjunction with a tachograph of a type in which a manual operation is necessary by the driver in order to indicate a change from one category of use to another, for example from resting to driving the vehicle, whilst the annular band 24*b* is intended to receive a trace bearing the same information when the chart is used in conjunction with a tachograph in which a change from one such category to another is registered automatically by the tachograph, for example by utilising respective sensors, etc. The area 24*a* is sub-divided into four concentric annular bands each corresponding to a respective one of the categories mentioned, to receive the trace indicative for the respective category of use when the chart is used in the aforesaid manual tachograph, the divisions between these annular bands being indicative by respective circular broken lines 26 separating such bands, the respective categories for the bands being indicated by respective symbols 28 located at the 90° and 270° positions on the disc.

In the region 24b, an annular track to receive the respective trace is defined between two pairs of concentric circular dotted lines 30. The automatic tachograph in which the disc of Figure 1A may be used produces a trace of different thicknesses depending upon the category of use, ranging from a fine trace when the drive is at rest with the engine switched off, to a very broad trace when the vehicle is being driven. The chart also bears a key to assist interpretation of the trace produced by the

automatic tachograph, such a key being provided, as indicated at 32 in Figure 1A at the 0° and 180° positions on the disc.

The central area of the disc is occupied, in manner known per se, by markings defining areas to receive written indications to be inserted manually, as to the date, identity of the driver, total distance travelled, etc.

Figure 1B shows the reverse side of the chart of Figure 1A. This reverse side bears areas marked to receive a manually entered record of some of the information normally recorded by the tachograph chart on the face of Figure 1A, in the event that the tachograph breaks down. The reverse side of the chart shown in Figure 1B is provided with a radial lines to indicate hourly and half-hourly intervals and by concentric circles defining annular bands each corresponding to in respect of one of the categories of use. The face that is shown in Figure 1B also contains information as to the various models of tachograph with which the disc may be used.

Figures 2A and 2B show opposite sides of another form of tachograph chart for use with a different model of tachograph. The side shown in Figure 2A is identical to that shown in Figure 1A, but the reverse side, shown in Figure 2B has an outer annular band 40 intended to receive a recorded trace to show the engine speed of the vehicle at various times. The central area of side 2B again has provision for the entry manually of various items of information and bears, in the band between the central area and band 40, an indication, inter alia, of the types of tachograph of which the chart is suitable. The chart of Figure 2A and 2B is in other respects similar to that of Figures 1A and 1B.

The chart shown in Figures 3A and 3B, intended for yet another form of tachograph, has a central apperature 45 of slightly different shape from that of Figures 1A and B and 2A and B and the face of Figure 3A has a band 24 which differs from that of Figures 1A and 2A in that an outer part 24a of band 24 is divided into four concentric bands to receive respective traces in respective categories of use in a model of the tachograph in question in which selection of the appropriate band for a trace is made manually. At the 0°, 90°, 180° and 270° positions on the disc are provided groups of symbols providing a key to the interpretation of traces in the band 24a. An automatic version of the tachograph concerned is arranged to provide in the appropriate bands selected manually in accordance with the category of use, a respective trace which when the vehicle is not being driven, in a relatively narrow trace. However, the tachograph is arranged to produce a substantially thicker trace, without changing the mean position of the trace as measured radially from the centre of the disc, when the vehicle reverts to a driving mode, so that even if the driver neglects to carry out the appropriate manual operation to alter the position of the trace, the tachograph will nevertheless record, in band 24*a*, the period over which the vehicle has been driven.

It will be noted that the side of the disc shown in Figure 3B is of substantially the same form as that shown in Figure 1B, although the shape of the hole is, as noted previously, different and, of course, the information relating to the types of tachograph considered suitable is appropriately different.

It will be appreciated that except that each of the tachograph charts described can be used in more than one particular model of tachograph which means that the number of different types of tachograph charts which must be stocked can be reduced. Thus, for example, it is possible for the operator of a fleet of commercial vehicles including vehicles fitted with tachographs requiring manual selection of the category of use and including vehicles having tachographs with automatic selection of that category, to stock tachograph charts of a single type. Thus, not only are stocking problems simplified but the risk that one type of tachograph chart may be inadvertently utilised in a tachograph of the wrong type, contrary to the relevant regulations, is minimised. Furthermore, if a driver in the course of a day changes from one vehicle having a tachograph of one type to another having a tachograph of the other, he can quite simply transfer the tachograph chart used in the first vehicle to the tachograph of the second vehicle with the minimum of clerical work being involved.

CLAIMS

1. A tachograph chart having an area adapted to receive a record as to a particular characteristic or set of characterists and which area bears markings to assist in interpretation of a record trace over said area, and wherein said chart is adapted for use on any one of at least two models of tachograph adapted to provide record traces of different types in said area, said area of said chart being respective markings or sets of markings to assist in interpretation of each of said different types of trace.

2. A tachograph chart substantially as hereinbefore described with reference to, and as shown in Figures 1A and 1B of the accompanying drawings.

3. A tachograph chart substantially as hereinbefore described with reference to, and as shown in Figures 2A and 2B of the accompanying drawings.

4. A tachograph chart substantially as hereinbefore described with reference to, and as shown in Figures 3A and 3B of the accompanying drawings.

5. Any novel feature or combination of features disclosed herein.

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ABSTRACT:

CHG DATE=19990617 STATUS=O> A tachograph chart has an area 24 to receive a record of time spent driving, resting or engaged in garage or other repair work, the area 24 being divided into two annular bands 24a and 24b respectively

intended to receive a trace when the chart is used in conjunction with a tachograph in which a manual operation is necessary by the driver in order to indicate a change from one category of use to another, and to receive a trace when the chart is used in conjunction with a tachograph in which a change from one category of use to another is registered automatically, e.g. by using appropriate sensors, the position or form of the trace in each case indicating the particular category of use concerned. Symbols 28, 32 aid the interpretation of the manual and automatic tracers respectively. Consequently the same design of chart can be used for different types of tachograph, thereby reducing printing and stocking costs. □